Please replace the paragraph beginning on page 29, line 6 with the following paragraph:

A method ~~system~~ for developing solid model data from joint motion image data is shown in Fig. 16. The method includes receiving joint motion image data (block 400), such as the fluoroscopic image data previously described, for analysis. The motion data is analyzed to group the joint motion studies into sets that are correlated by the degree of motion demonstrated during a particular activity, such as walking or running (block 404). This analysis may be performed by frequency distribution analysis, for example. The correlation of images to a particular motion grouping is then analyzed by determining whether one or more geometric dimension groupings correlate to the joints depicted in the image studies associated with a motion grouping (block 408). This analysis is performed for each motion grouping (block 410). From the geometric dimensions and the corresponding measurement range for each dimension, the artificial implant model generator 18 generates model data for an artificial implant that corresponds to a motion grouping (block 412). The model data along with the dimensions used to construct the model and the measurement ranges for the dimensions are used for a kinematic model simulation (block 414). The dynamic response data generated from a simulation are compared to one or more joint motion image studies to determine whether a conditional parameter is detected (block 418). This comparison may be between the motion versus time response data from the kinematic model simulation and the motion versus time data from at least one of the joint motion image studies correlated to the motion grouping that was used to develop the solid implant model data. The comparison determines whether the implant model was able to replicate the same motion as the normal knee in the correlated joint motion study. If the comparison indicates the implant model was unable to achieve the normal joint motion, a set of differential data is generated (block 420) and used to develop another set of model data. The process may iteratively continue until a set of model data is generated that produces dynamic response data indicative of a normal range of motion. This set of model data may then be stored (block 424) and later used to fabricate an artificial implant that is more likely to provide a normal range of motion in the segment of the population that corresponds to the geometric dimensions and measurements used to generate the artificial implant.